

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Patent Application of:  
Larry W. FULLERTON et al.

Art Unit: 2611

Application No: 10/784,747

Examiner: Young Toi Tse

Confirmation No: 2442

Filed: February 24, 2004

Atty. Docket No: 28549-200824

For: ULTRA WIDE-BAND  
COMMUNICATION SYSTEM AND  
METHOD

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Customer No:

**26694**

PATENT TRADEMARK OFFICE

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Advisory Action dated April 07, 2010, Appellant respectfully submits this Pre-Appeal Brief Request for Review pursuant to the "New Pre-Appeal Brief Conference Pilot Program" (1296 Off. Gaz. Office 67 (July 12, 2005), extended, 1303 Off. Gaz. Pat. Office 21 (February 7, 2006)). Appellant also submits herewith a Notice of Appeal pursuant to 37 C.F.R. §41.31(a)(1), claims 23-25, 27-34, and 36-42 having been finally rejected.

The Appellant respectfully requests reconsideration by an appeals panel of the rejections made under 35 U.S.C. § 103(a) due to improper rejections based upon errors in facts as well as the omission of essential elements required to establish a prima facie rejection. In view of the following remarks, the present application is believed to be in condition for allowance. Reconsideration and withdrawal of the rejections are respectfully requested.

**Rejections Under 35 U.S.C. § 103(a):**

(1) Claims 23-24, 27-33, 36-40, and 42 stand rejected under 35 U.S.C. § 103(a) as being obvious over Fullerton `317 in view of U.S. Patent No. 5,297,096 to Buchan (hereinafter Buchan). Applicants respectfully traverse the rejection.

Claims 23 requires a filter that spectrally modifies an ultra wideband signal to create one or more zero crossings in the time domain. The Action correctly concedes that Fullerton `317 fails to teach a filter that spectrally modifies the wide spectrum to create one or more zero crossings in the time domain. The Action, however, alleges that Buchan meets this requirement because Figure 5 of Buchan shows a time domain filter 225. Citing column 10, lines 15-20, the Action states that Buchan teaches "a well-known time-domain filter that detects the timing of input crosses zero, delays a predetermined amount in the time domain, and then examines the amplitude quantification signal as to whether or not it has exceeded one or two threshold levels that are on either side of a reference by equal amounts." The Action concludes that it would have been obvious to incorporate the time domain filter of Buchan into Fullerton's transmitter. As best understood, the Action argues that the time domain filter of Buchan is capable of modifying ultra wide band signal (UWB) to create one or more zero crossing in the time domain in Fullerton's transmitter.

The Action errs in fact by incorrectly relying on Figure 6 of Buchan for showing a waveform that is created by the time domain filter 225, when in fact, the shown waveform is at the filter's input, but not at its output. While the claimed invention requires the filter to create zero crossings by spectrally modifying an ultra wideband signal, Buchan's filter detects such zero crossings. Detecting zero crossings is not creating zero crossing and zero crossings must be created before they can be detected. Indeed, the Action itself concedes that the filter 225 detects zero crossings, as opposed to creating them, by stating that "Buchan also teaches that a well known time domain filter essentially detects when the timing of input crosses zero." See, Final Action Page 8, second paragraph. This statement confirms that, unlike the claimed invention, the time domain filter of Buchan does not spectrally modify an ultra wide band signal to generate the waveform of Figure 6.

Furthermore, just a cursory review of the wave form labeling in Figure 6 reveals that the shown waveforms could not have been generated by the filter 225. This is because the shown zero crossing waveforms are labeled as input waveforms to the filter 225 of Figure 5. Indeed the Action seems to agree that the Figure 6 waveform is an input, not an output, by citing Col. 10, lines 39-47 of Buchan for teaching that "Figure 6 sets forth waveforms that represent the timing channel and amplitude qualification inputs to the time domain filter, ....following a zero crossing by the timing signal."

The Action has not explained how inputting the waveform of Figure 6 into the time domain filter of Buchan, which performs zero crossing detection, meets the claimed requirement of spectrally modifying UWB signals to create one or more zero crossings in the time domain, as required by the claimed invention. Figure 6 of Buchan shows inputs to the time domain filter of Figure 5. See, Buchan, Column 3, lines 15-18.. It is well known that a filter can not generate zero crossings at its input. There is no disclosure in Buchanan regarding filter 225 creating any type of zero crossings. Consequently, by teaching a time domain filter that detects the timing of the zero crossings of an input signal, Buchan fails to teach or fairly suggest a filter that spectrally modifies a ultra wideband signal to create one or more zero-crossings in the time domain, as required in claims 23.

Finally, the Action argues it would have been obvious to recognize that a time domain filter, such as Buchan's filter, is capable of modifying UWB signals at the input of filter 82 of Fullerton to create one or more zero crossings. Buchan discloses a write equalization circuit for a computer tape drive. There is no indication, teaching or suggestion anywhere in this reference for using the disclosed tape drive write equalization circuit in any radio frequency transmitter whatsoever, let alone a UWB transmitter. There is also no implicit or explicit evidence on record as to why one of ordinary skill in the art of radio frequency transmitters would look into the tape drive technology for a filter that spectrally modifies RF signal to create one or more zero crossings in the time domain. There is no evidence in the record that one of ordinary skill in the art in the RF/UWB transmitters would seek a solution in the non-analogous tape drive art. Even assuming arguendo that RF/UWB transmitters and tape drive art are analogous, Buchan's filter still does not spectrally modify an UWB signal to create zero crossings. This filter merely detects zero crossings. Therefore,

replacing the filter 82 of Fullerton with filter 225 of Buchan would results in a transmitter that outputs a signal that corresponds to the detected zero crossings of Fullerton's modulated UWB signal. Such signal would be useless for its intended purpose, i.e., communicating the modulated information, since the signal does not correspond to any such information. Therefore, Buchan does not teach or suggest a filter that spectrally modifies a ultra wideband signal to create one or more zero crossings, as required in claim 23. Based on the foregoing reasoning, neither Fullerton `317 nor Buchan, alone or in combination, teach or suggest claim 23. Withdrawal of the rejection is respectfully requested.

Claims 31 and 40 recites similar subject matter and are allowable, at least for similar reasons. Withdrawal of the rejections is respectfully requested.

Claims 24 and 27-30, 32-33 and 36-39, and 42 depend on claims 23, 31, and 40, respectively, and are allowable, at least, for depending from an allowable claim. Applicants respectfully request the rejections be withdrawn.

Claims 25, 34, and 41 stand rejected under 35 U.S.C. § 103(a) as being obvious over Fullerton `317 in view of Buchan and further in view of U.S. Patent No. 4,583,232 to Howell. This rejection is respectfully traversed Because Claim 25, 34, and 41 depend on claims 23, 31, and 40 respectively, and are allowable, at least, for depending on an allowable claim. Withdrawal of this rejection is respectfully requested.

Dated: April 26, 2010

Respectfully submitted,

By /Robert S. Babayi/

Robert S. Babayi

Registration No.: 33,471

VENABLE LLP

P.O. Box 34385

Washington, DC 20043-9998

(202) 344-4000

(202) 344-8300 (Fax)

Attorney/Agent For Applicant

#1103470